AMENDMENTS TO THE CLAIMS

Please cancel claims 1-24, 43 and 44 without prejudice or disclaimer and amend claims 25 and 49 as set forth below:

1. - 24. (CANCELED).

25. (CURRENTLY AMENDED) A method for production of a semiconductor device, comprising the steps of:

forming at least a groove or hole in an insulation film formed on a substrate;

stacking a metal film on said insulation film so as to bury the groove or hole;

interposing an electrolytic solution between an electrode member and the metal film;

oxidizing the surface of the metal film through an anode oxidation process;

forming a chelate film of oxidized copper on the oxidated metal film;

removing the chelate film from the surface of the metal film, wherein said chelate film is removed by wiping or mechanical polishing and the chelate film is wiped by a wiping member having an air hole; and

selectively repeating the above step of removing the chelate film until the unevenness of the surface of the metal film is reduced.

26. (ORIGINAL) A method for producing a semiconductor device as set forth in claim 25, wherein said insulation film comprises a silicon dioxide film.

27. (ORIGINAL) A method for producing a semiconductor device as set forth in claim 25, wherein said insulation film comprises a silicon nitride film.

28. (ORIGINAL) A method for producing a semiconductor device as set forth in claim 25, wherein said insulation film comprises an insulation film having a dielectric constant less than a silicon dioxide film.

29. (ORIGINAL) A method for producing a semiconductor device as set forth in claim 28, wherein said insulation film having a dielectric constant less than a silicon

dioxide film comprises SiF, SiOCH, polyarylether, porous silica, or polyimide.

30. (ORIGINAL) A method for producing a semiconductor device as set forth in claim 25, wherein

in said step of forming at least a groove or hole in an insulation film, either a groove or a hole is formed and

in said step of stacking a metal film on said insulation film, either the groove or the hole is buried.

31. (PREVIOUSLY PRESENTED) A method for producing a semiconductor device as set forth in claim 25, wherein

in said step of forming at least a groove or hole in an insulation film, the hole is in communication with the bottom surface of the groove; and

in said step of stacking a metal film on said insulation film, both the groove and the hole are buried.

32. (ORIGINAL) A method for producing a semiconductor device as set forth in claim 25, wherein in said step of stacking a metal film on said insulation film, at least one of Al, W, WN, Cu, Au, and Ag or an alloy of the same is stacked by either a chemical vapor-phase growing process or a physical vapor-phase growing process.

33. (ORIGINAL) A method for producing a semiconductor device as set forth in claim 25, wherein in said step of stacking a metal film on said insulation film, at least one of Cu, Au, and Ag or an alloy of the same is stacked by an electroplating process.

34. (ORIGINAL) A method for producing a semiconductor device as set forth in claim 25, wherein in said step of stacking a metal film on said insulation film, at least one of Co, Ni, CoWP, Cu, Au, and Ag or an alloy of the same is stacked by an electroless plating process.

35. (ORIGINAL) A method for producing a semiconductor device as set forth in claim 25, wherein in said step of interposing an electrolytic solution between said

electrode member and said metal film, an electrolytic solution including an electrolyte and an additive is interposed.

36. (ORIGINAL) A method for producing a semiconductor device as set forth in claim 35, wherein said electrolytic solution comprises copper ions.

37. (ORIGINAL) A method for producing a semiconductor device as set forth in claim 35, wherein said electrolytic solution comprises at least a brightener or a chelating agent as said additive.

38. (PREVIOUSLY PRESENTED) A method for producing a semiconductor device as set forth in claim 25, wherein in said oxidizing step periodical pulse-like voltage is applied between the electrode member and the metal film.

39. (ORIGINAL) A method for producing a semiconductor device as set forth in claim 38, wherein said applied periodical pulse-like voltage has a rectangular, sinusoidal, sawtooth wave, or PAM waveform.

40. (PREVIOUSLY PRESENTED) A method for producing a semiconductor device as set forth in claim 38, wherein in said oxidizing step of a periodical pulse-like voltage is applied so that the current flowing through the cathode member and the metal film becomes small near the end of the process of removing the metal film.

41. (PREVIOUSLY PRESENTED) A method for producing a semiconductor device as set forth in claim 38, wherein in said oxidizing step a periodical pulse-like voltage is applied so that the current flowing through the electrode member and the metal film changes in a step-like manner.

42. (PREVIOUSLY PRESENTED) A method for producing a semiconductor device as set forth in claim 38, wherein in said oxidizing step a periodical pulse-like voltage is applied so that the current flowing through the electrode member and the metal film rises gradually at the beginning of the process of removing the metal film.

43. (CANCELED).

44. (CANCELED).

45. (PREVIOUSLY PRESENTED) A method for producing a semiconductor device as set forth in claim 43, wherein in said step of wiping the surface of the chelate film, the surface of the chelate film is wiped by a wiping member comprising an elastic material.

46. (ORIGINAL) A method for producing a semiconductor device as set forth in claim 25, wherein said step of interposing an electrolytic solution between said electrode member and said metal film further includes a step of adjusting the electrolytic solution to a predetermined temperature.

47. (PREVIOUSLY PRESENTED) A method for producing a semiconductor device as set forth in claim 46, wherein in said step of adjusting said electrolytic solution to a predetermined temperature, the temperature of the electrolytic solution is adjusted below 80°C.

48. (PREVIOUSLY PRESENTED) A method for producing a semiconductor device as set forth in claim 25, further comprising a step of forming a barrier film for preventing diffusion of said metal film to said insulation film on the insulation film so as to bury said groove or hole after forming the groove or hole in the insulation film and before stacking the metal film on said insulation film,

wherein said metal film is stacked on the barrier film in the step of stacking the metal film on said insulation film.

49. (CURRENTLY AMENDED) A method for producing a semiconductor device as set forth in claim 48, wherein in said step of stacking said barrier film on said insulation film, at least one of Ti, TiN, Ta, ~~TAN~~TaN, W, WN, Co, CoWP, TiSiN, and NiWP or a stacked structure of the same is stacked.

50. (PREVIOUSLY PRESENTED) A method for producing a semiconductor device as set forth in claim 25, wherein in said step of removing the surface of said chelate film, the step of chelate film removal is repeated until the metal film stacked outside said groove or hole is removed.

51. (PREVIOUSLY PRESENTED) A method for producing a semiconductor device as set forth in claim 25, wherein in said oxidation step of and said step of removing the surface of the chelate film, the surface of the oxidized metal film is removed in a state of applying a predetermined voltage between the electrode member and the oxidized metal film.

52. (PREVIOUSLY PRESENTED) A method for producing a semiconductor device as set forth in claim 25, wherein in said oxidizing step and said step of removing the surface of the chelate film, the surface of the chelate film is removed after a predetermined time period after applying a predetermined voltage between the electrode member and the metal film.

53. - 111. (CANCELED).